



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,977	02/19/2004	Lindsay Grant	02EDI31052631	1026
27975 7590 05/25/2007 ALLEN, DYER, DOPPELT, MILBRATH & GILCHRIST P.A. 1401 CITRUS CENTER 255 SOUTH ORANGE AVENUE P.O. BOX 3791 ORLANDO, FL 32802-3791			EXAMINER SOWARD, IDA M	
			ART UNIT 2822	PAPER NUMBER
			MAIL DATE 05/25/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

36

Office Action Summary	Application No. 10/781,977	Applicant(s) GRANT, LINDSAY	
	Examiner Ida M. Soward	Art Unit 2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-24, 38 and 40-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-24, 38 and 40-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the Request for Continued Examination (RCE) filed May 1, 2007.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 17, 20-22, 38 and 42-43 are rejected under 35 U.S.C. 102(e) as being anticipated by Nozaki et al. (US 6,642,087 B2).

In regard to claim 17, Nozaki et al. teach a semiconductor image sensor comprising: at least one pixel RANGE A comprising a photosensing portion 34 and a silicide formation prevention coating 19 thereon, said silicide formation prevention

Art Unit: 2822

coating 19 extending only across the photosensing portion 34 of each pixel RANGE A (Figure 7, columns 8-10, lines 10-67, 1-67 and 1-46, respectively).

In regard to claim 20, Nozaki et al. teach the silicide formation prevention coating 19 comprising a layer of silicon nitride 17 and a layer of silicon dioxide 16 adjacent thereto (Figure 7, columns 8-10, lines 10-67, 1-67 and 1-46, respectively).

In regard to claims 21 and 42, where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, burden is on Applicant to show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

In regard to claims 22 and 43, Nozaki et al. teach the photosensing portion 34 comprises a photo-diode (Figure 7, columns 8-10, lines 10-67, 1-67 and 1-46, respectively).

In regard to claim 38, Nozaki et al. teach a partially formed semiconductor image sensor comprising: at least one pixel RANGE A comprising a photosensing portion 34 and a silicide formation prevention coating 19 thereon, said silicide formation prevention coating 19 comprising a layer of silicon dioxide 16 and a layer of silicon nitride 17 adjacent thereto; said silicon dioxide 16 and silicon nitride 17 layers extending only across the photosensing portion 34 of each pixel RANGE A; an entire surface (at 34) of each pixel RANGE A of the partially formed image sensor being free of silicide (Figure 7, columns 8-10, lines 10-67, 1-67 and 1-46, respectively).

In regard to claims 17 and 38 and their limitations "having a thickness to operate as an anti-reflective surface at a desired wavelength range" and "having thicknesses

Art Unit: 2822

such that the silicide formation prevention coating has a thickness to operate as an anti-reflective surface at a desired wavelength range", claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function, *In re Danly*, 263, F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). Apparatus claims cover what a device is, not what a device does. *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

In regard to "partially" in claim 38, If the body of a claim fully and intrinsically sets forth all of the limitations of the claimed invention, and the preamble merely states, for example, the purpose or intended use of the invention, rather than any distinct definition of any of the claimed invention's limitations, then the preamble is not considered a limitation and is of no significance to claim construction. *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165 (Fed. Cir. 1999). See also *Rowe v. Dror*, 112 F.3d 473, 478, 42 USPQ2d 1550, 1553 (Fed. Cir. 1997) ("where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention, the preamble is not a claim limitation").

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18-19 and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozaki et al. (US 6,642,087 B2) as applied to claims 17, 20-22, 38 and 42-43 above, and further in view of Rhodes (US 2002/0109157 A1).

Nozaki et al. teach all mentioned in the rejection above.

However, Nozaki et al. fail to teach the silicide formation prevention coating having a maximum transmission at a wavelength range of substantially blue light; and the silicide formation prevention coating having a maximum transmission at a wavelength range of substantially 450nm.

In regard to claims 18 and 40, Rhodes teaches the silicide formation prevention coating 102 having a maximum transmission at a wavelength range of substantially blue light (Figure 12, page 4, paragraph [0045]).

In regard to claims 19 and 41, Rhodes teaches the silicide formation prevention coating 102 having a maximum transmission at a wavelength range of approximately 385 to 550nm, which is in the range of substantially 450nm (Figure 12, page 4, paragraph [0045]).

Therefore, it would have been obvious to having ordinary skill in the art at the time the invention was made to modify the semiconductor image sensor structure as taught by Nozaki et al. with the semiconductor image sensor having the silicide formation prevention coating having a maximum transmission at a wavelength range of substantially blue light; and the silicide formation prevention coating having a maximum transmission at a wavelength range of substantially 450nm as taught by Rhodes to

Art Unit: 2822

improve the functioning of the sensor in applications where sheet resistance is of concern (page 5, paragraph [0051]).

Claims 23-24 and 44-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nozaki et al. (US 6,642,087 B2) as applied to claims 17, 20-22, 38 and 42-43 above, and further in view of Guidash (US 2003/0062561 A1).

Nozaki et al. teach all mentioned in the rejection above.

However, Nozaki et al. fail to teach the photo-diode comprising a pinned photo-diode or a partially pinned photo-diode.

Guidash teaches a photo-diode 12 comprising a pinned photo-diode or a partially pinned photo-diode (Figures 8, 10 and 12, page 3, paragraph [0037]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor image sensor structure as taught by Nozaki et al. with the semiconductor image sensor having a photo-diode comprising a pinned photo-diode or a partially pinned photo-diode as taught by Guidash to reduce the number of processing steps (page 3, paragraph [0036]).

Response to Arguments

Applicant's arguments with respect to claims 17-24, 38 and 40-45 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to semiconductor image sensors:

Chen et al. (US 2002/0031910 A1)	Drowley et al. (6,023,081)
Drowley et al. (US 6,221,686 B1)	Hokari (5,654,565)
Kuo et al. (US 6,448,101 B1)	Lim (US 6,737,291 B1)
Nagata et al. (US 6,703,256 B2)	Ohkubo (US 6,635,912 B2)
Thomas et al. (US 6,743,652 B2).	

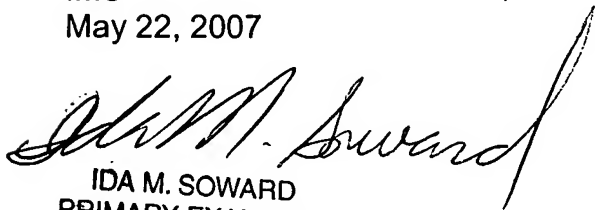
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ida M. Soward whose telephone number is 571-272-1845. The examiner can normally be reached on Monday - Thursday 6:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra V. Smith can be reached on 571-272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2822

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

IMS
May 22, 2007



IDA M. SOWARD
PRIMARY EXAMINER